

WHAT IS CLAIMED IS:

1. A cover for a biological sample well tray, comprising:
a cap for sealing a sample well, wherein said cap comprises a well lens for focusing light into the sample well and collecting light emitted by the sample.
2. The cover of claim 1, wherein the well lens is a convex lens.
3. The cover of claim 1, wherein the well lens is a Fresnel lens.
4. The cover of claim 1, wherein the cap further comprises a cylindrical sealing member configured to engage an inner surface of the sample well.
5. The cover of claim 1, wherein the cap further comprises an elongate portion.
6. The cover of claim 5, wherein the elongate portion is substantially cylindrical.
7. The cover of claim 5, wherein the elongate portion is solid or hollow.
8. The cover of claim 7, wherein the well lens is positioned in the elongate portion.
9. The cover of claim 8, wherein the elongate portion is hollow.
10. The cover of claim 9, wherein the well lens is positioned on the bottom surface of the hollow elongate portion.
11. The cover of claim 7, wherein the well lens comprises a curved lens extending into the biological sample.
12. A cover for a biological sample well tray, comprising:

a cap for sealing a sample well, wherein said cap comprises an elongate portion, the elongate portion configured to permit incoming light to pass into the sample well and out of the sample well.

13. The cover of claim 12, wherein the elongate portion is solid or hollow.

14. The cover of claim 13, further comprising a well lens positioned adjacent to the cap for focusing light into the sample well and transmitting light out of the sample well.

15. The cover of claim 13, further comprising a well lens positioned in the cap for focusing light into the sample well and transmitting light out of the sample well.

16. The cover of claim 15, wherein the elongate portion is hollow.

17. The cover of claim 16, wherein the well lens is positioned on the bottom surface of the hollow elongate portion.

18. The cover of claim 15, wherein the elongate portion is substantially cylindrical and the well lens comprises a curved lens extending into the biological sample.

19. A microcard for biological material, comprising:

a first member; and

a second member defining a plurality of sample chambers between the first member and the second member, the second member comprising a plurality of well lenses corresponding to the plurality of sample chambers, wherein the well lenses are in fluid contact with a sample of biological material in the sample chamber and

wherein the well lenses focus light into the sample chamber and collect light emitted by the sample.

20. The microcard of claim 19, wherein the well lens comprises a round lens.

21. The microcard of claim 19, wherein the well lens further comprises a flat bottom surface.

22. The microcard of claim 21, wherein the well lens further comprises angled projections to the flat bottom surface.

23. The microcard of claim 19, wherein the first member is a generally flat plate.

24. The microcard of claim 23, wherein the first member is metallic.

25. The microcard of claim 19, wherein the first member is polypropylene.

26. The microcard of claim 19, wherein the plurality of sample chambers are positioned in a matrix.

27. An apparatus for holding samples of biological material, comprising:
a plurality of sample well strips, each sample well strip comprising:

a plurality of sample wells defined by side walls and bottoms; and

a plurality of bottom stacking projections, each bottom stacking projection extending downward from a sample well bottom, the bottom stacking projection configured to cap another sample well in another sample well strip,

wherein said side walls comprise a plurality of well lenses for focusing light into the sample well and transmitting light out of the sample well.

28. The apparatus of claim 27, wherein the plurality of lens in the side walls of the sample strip are molded into the side walls of the sample well strips.

29. The apparatus of claim 27, wherein the sample well strips are configured to be stacked vertically with the well lenses in fluid contact with the biological sample.

30. A method for testing a biological sample, comprising:
providing a sample well or sample chamber containing said biological sample;
providing a cap for said sample well, wherein said cap comprises a well lens;
focusing light into said sample well; and
collecting light from said sample.

31. The method of claim 30, wherein said focusing light comprises directing light from a light source to said biological sample.

32. The method of claim 30, wherein said collecting light comprises directing light from said biological sample to a detector.

33. The method of claim 32, wherein said light directed from said biological sample comprises fluorescence.

34. The method of claim 32, wherein said light directed from said biological sample comprises at least one of scattering, chemiluminescence, phosphorescence, and Raman scattering.

35. An apparatus for holding samples of biological material, comprising:
a plurality of conical sample wells, wherein each sample well comprises a well lens for focusing light into the sample and collecting light emitted from the sample, wherein each conical sample well has a circular opening and a

angled closure, and wherein the well lens forms the angled closure of each conical sample well.

36. An apparatus for holding samples of biological material, comprising:

A plurality of sample wells, wherein each sample well comprises a well lens for focusing light into the sample and collecting light emitted from the sample, wherein the well lens provides a bottom for the sample well, and wherein the well lens is a Fresnel lens.

37. A system for analyzing samples of biological material, comprising:

a plurality of sample wells, wherein each sample well comprises a well lens for focusing light into the sample and collecting light emitted from the sample, and wherein the well lens provides a bottom for the sample well;

a light source for providing excitation light to the sample wells; and

a detector, wherein said detector provides a surface area to detect the collected light from each sample well, wherein the surface area comprises regions corresponding to each sample well.